

Some observations on moths laying eggs

Occasionally, while looking for moths and their caterpillars, one sees interesting behaviour which provides a more general insight into how moths live their lives. Recently, while reading through some files of field notes, I found myself mentally gathering together the observations I have recorded over the years on egg-laying behaviour. Apart from numerous accounts of species-specific details, such as recording the way a female Dark Arches *Apamea monoglypha* inserts her eggs into the leaf-sheath of grasses, or the female Black-veined moth *Siona lineata* lays hers like a row of little squared butterscotches along the blade of Tor-grass *Brachypodium pinnatum*, and the selection of plants of a particular size and situation for egg-laying, such as low growth of Downy Birch *Betula pubescens* in the case of the Argent & Sable *Rheumaptera hastata* (see *Ent. Rec.* **113**: 143-144), I came across several examples of more general interest which I take this opportunity to report.

Intense egg-laying mode

It is common experience that light-trap catches of most species consist predominantly of males. The sound and plausible reason usually provided to account for this imbalance is the greater mobility and activity of males in searching out females (and hence the greater likelihood that they will encounter the trap). It is often assumed that females are more passive, resting to conserve energy for egg-laying and attracting males by pheromones. In some cases this is indicated in that they have bulkier, heavier abdomens and often wings which are reduced in size, a trend which reaches an extreme in the virtually wingless females of species such as the Winter moth *Operophtera brumata* and the Vapourer *Orgyia antiqua*, but can also be seen in much less obvious form in the species as diverse as the Feathered Thorn *Colotois pennaria* and Marsh Moth *Athetis pallustris*. Another feature which would contribute to the same result is what I describe as an intense egg-laying mode in which the females are not easily distracted by bright lights and in some cases appear oblivious of them. I have seen females in this almost single-minded state a number of times, but one that stands out was an occasion in which I watched a female Poplar Hawk-moth *Laothoe populi* prospecting around the foliage of a sapling of Aspen *Populus tremula*. I noticed her first when she flew across the main woodland ride into the Aspen (in Oakley Wood, Buckinghamshire, at 22.05 hours on 30 July 1985). She flew slowly, but purposefully, amongst the foliage. She settled on the edge of one leaf, tucked her abdomen tip under and attached her egg to the lower side of the leaf. The sapling was 2.5m tall, the shell of foliage about 2m wide and the egg was laid on a leaf in the centre. The female was watched by torchlight throughout. It was not until after she had laid the egg that she briefly flew towards my torchlight, before veering away and flying off purposefully down the ride.

Female Lappet *Gastropacha quercifolia* and female Drinker moths *Euthrix potatoria* are so heavy before they have laid many eggs that they often fly very low

over grass (as I observed in single females of both species between 22.00 hours and 23.00 hours on 9 July 1984 around the base of the gate between Bernwood Forest and Bernwood Meadows, Buckinghamshire). Both females were much more slow-flying than males of the same species and likely to cover much less ground.

Larval foodplant choice by female moth

Many species of moths exploit a number of species of larval foodplants. For those in which the female attaches her eggs to the foodplant, I have often wondered whether some females in the population confine their attention to one species, or whether they move freely between them. There can be a problem in pursuing egg-laying females in order to observe this, in that they can be disturbed and end up laying eggs in inappropriate places. The female Black-veined moth will lay single eggs on most plants she settles on when chased by a human observer, deviating from her normal behaviour described above in which a series of usually four or five eggs are laid unhurriedly along the edge of a grass blade or stem. On one memorable occasion I saw a female Coxcomb Prominent *Ptilodon capucina* lay one egg on the leaf of a 2.5m tall Hazel bush *Corylus avellana* and then lay two eggs on the next vegetation she flew to, a sprig of Downy Birch growth *Betula pubescens* only 0.6m tall. Both are suitable species of larval foodplants, on which I have found many Coxcomb Prominent larvae over the years. The whole episode took place very quickly. The female was initially noticed flying about 2m above ground around the Hazel bush. This was at 16.00hrs on the overcast afternoon of 24 May 1985 by the main ride in Hell Coppice, Oxfordshire. She paused on the edge of a Hazel leaf, wings flapping, curled her abdomen under and laid one cream, domed egg. Then she flew straight across the open ride to the opposite side, directly to the birch, which comprised only three slender stems and was 16m from the Hazel. The two eggs she laid on the birch were side by side on the underside of the same leaf. She then flew to rest 2.5m up on a Hazel bush behind the birch, where she folded her wings and settled to roost. Whether she recognised the birch before she set off from the Hazel, or only by taste once she landed on it, I could not say. However the observation serves to show that the same female showed no hesitation in laying successive eggs on two different species of suitable larval foodplant, in the same egg-laying episode, with hardly a break in between, yet was not blundering into any trees or shrubs nor laying on unsuitable hosts as disturbed or confined moths are prone to do.

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